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FOREST AREA AND TIMBER RESOURCE STATISTICS FOR THE MOUNTAIN LANDS AND UINTA BASIN WORKING CIRCLES, UTAH, 1977-1978

DOROTHY G. FELT



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RESEARCH SUMMARY

Presents land area, commercial timberland area, timber inventory, and growth and mortality data based on Resources Evaluation standards.

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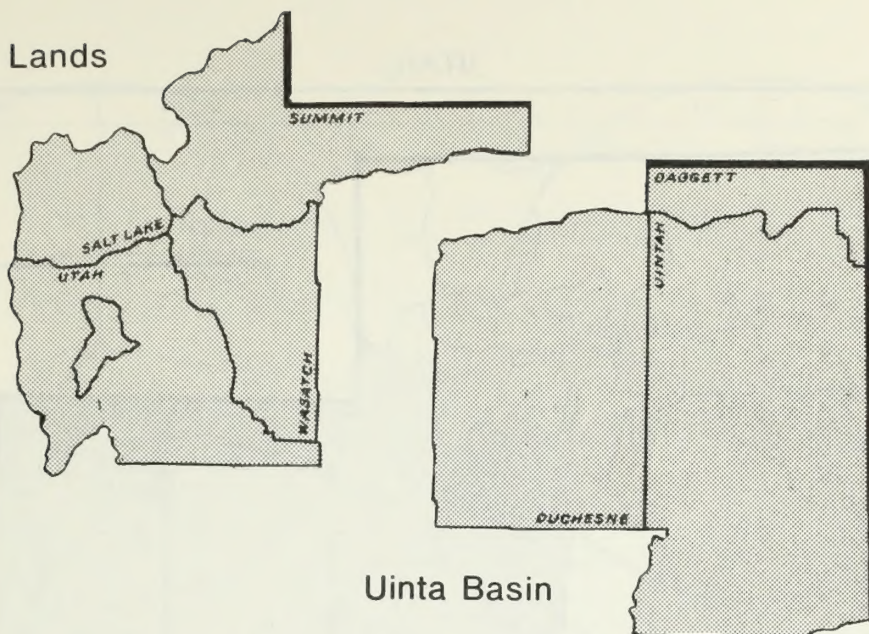
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Mountain Lands

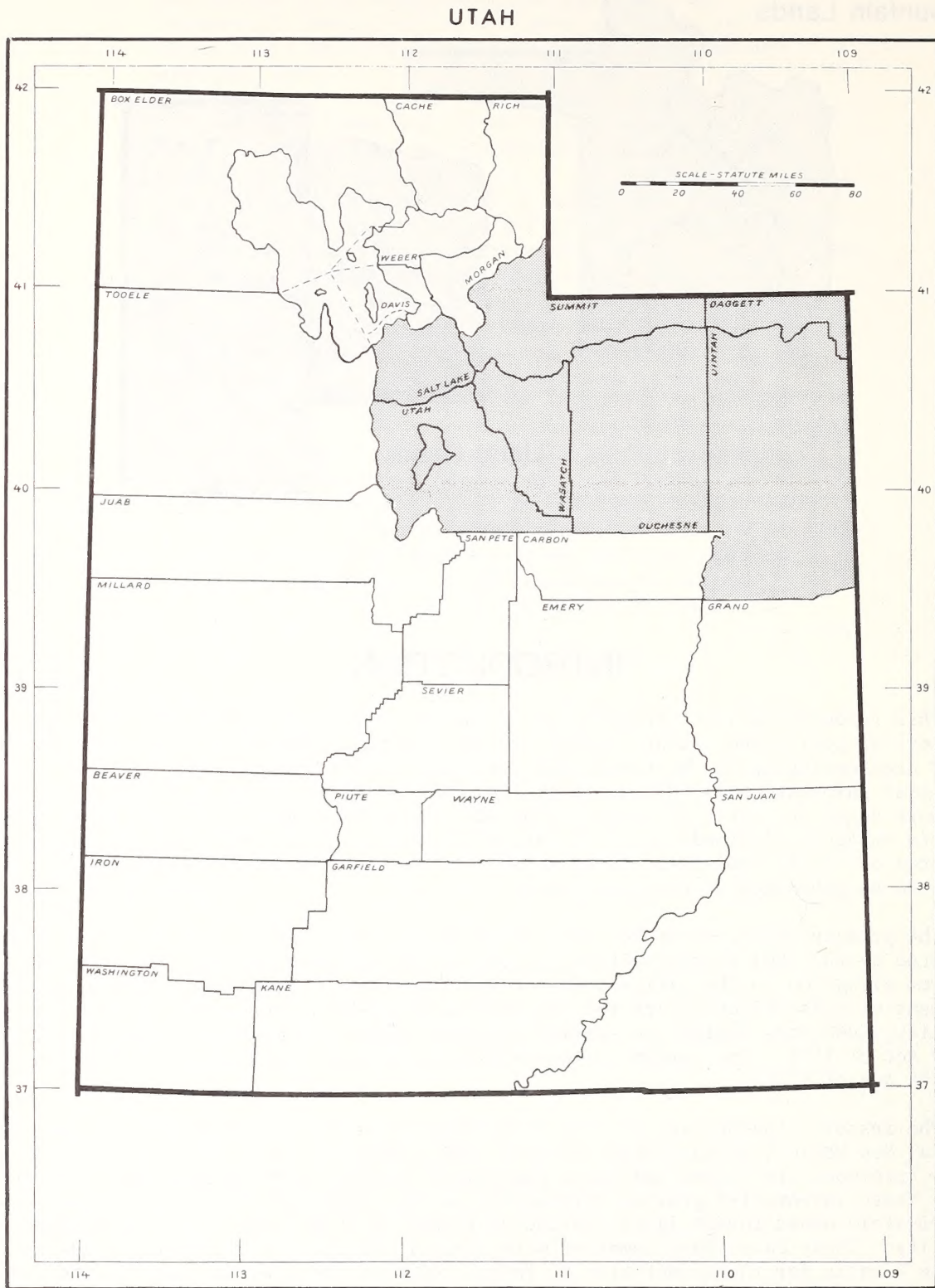


INTRODUCTION

This resource bulletin presents the principal findings of the second forest inventory of public and private lands, excluding National Forest ownership, in the six county area making up the Mountain Lands and Uinta Basin Working Circles (fig. 1; additional information for ownership by land classes is presented in figures 2-5). Fieldwork began in June 1977 and was completed in November 1978. This bulletin does not note changes and trends since the statewide inventory of 1961, nor does it contain estimates of timber removals. These items will be included in the State analytical report to be published in the near future.

The primary objective of Resources Evaluation, a continuing nationwide undertaking conducted by the USDA Forest Service, is to provide an assessment of the renewable resource situation on the Nation's forest and rangelands. Fundamental to the accomplishment of this objective are the periodic state-by-state resource inventories. Originally, Resources Evaluation--formerly Forest Survey--was authorized by the McSweeney-McNary Act of 1928. The current authorization is through the Renewable Resources Research Act of 1978.

The resource inventories for the Rocky Mountain States of Arizona, Colorado, Idaho, Montana, New Mexico, Nevada, Utah, Wyoming, and western South Dakota are administered by the Intermountain Forest and Range Experiment Station, with headquarters in Ogden, Utah. These inventories provide information on the extent and condition of publicly and privately owned forest lands, volume of timber, and rates of timber growth and mortality. These data, when combined with similar information on Federal lands, provide a basis for the formulation of forest policies and programs and for the orderly development and use of the resources.



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Figure 1.--Mountain Lands and Uinta Basin Working Circles, Utah.

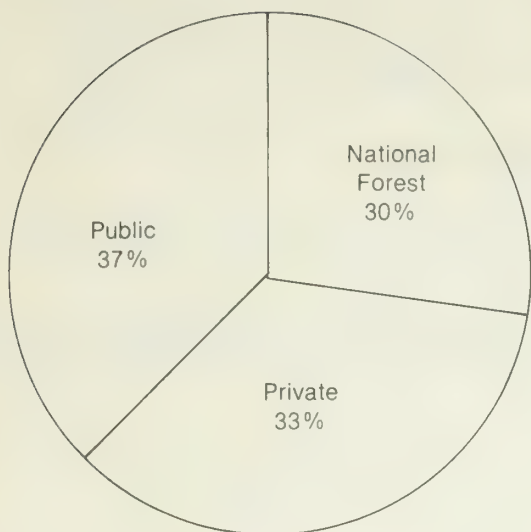


Figure 2.--Total land area for the Mountain Lands and Uinta Basin Working Circles, by ownership.

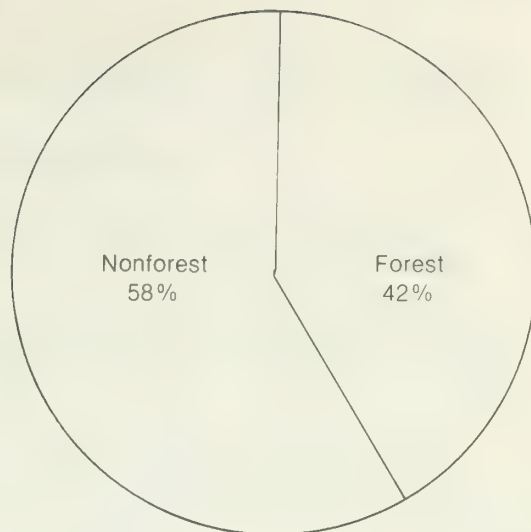


Figure 3.--Total land area for the Mountain Lands and Uinta Basin Working Circles, by land class.

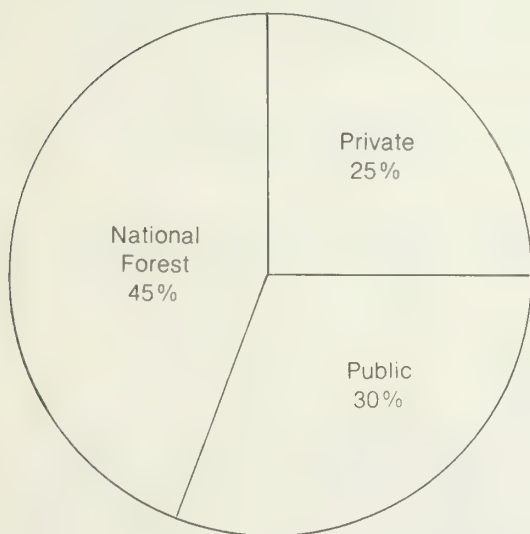


Figure 4.--Total area of forest land for the Mountain Lands and Uinta Basin Working circles, by ownership.

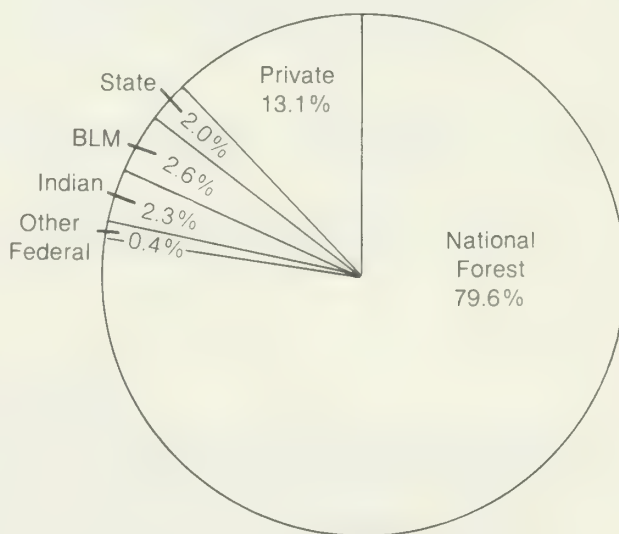


Figure 5.--Area of productive timberland for the Mountain Lands and Uinta Basin Working Circles, by ownership.

HIGHLIGHTS

Area

- Forests occupy 2,024 thousand acres (819 thousand hectares), or 34 percent of the total public and private land area in the working circles.
- Of the forest land, 302 thousand acres (122 thousand hectares), almost 15 percent, is classified as commercial timberland.
- Private ownership accounts for 193 thousand acres (78 thousand hectares), 64 percent of the commercial timberland (fig. 6).
- Aspen, Douglas-fir, fir-spruce, and lodgepole pine are the predominant forest types and occupy 85 percent of the commercial timberland. Pinyon-juniper, white fir, ponderosa pine, limber pine, and cottonwood forest types cover the remaining area.
- Over two-thirds of the commercial timberland is in the 20 to 49 cubic foot productivity class, and nearly 60 percent of such land is privately owned.

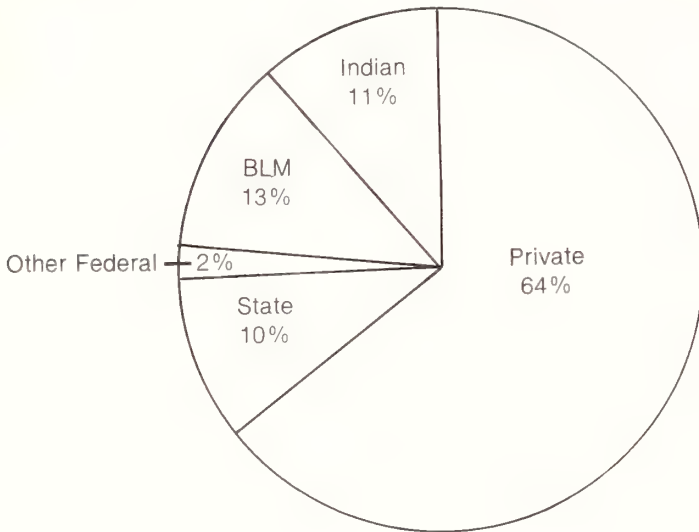


Figure 6.--Area of commercial timberland for the Mountain Lands and Uinta Basin Working Circles, by ownership (excluding National Forest).

Inventory

- Growing stock volume amounts to 318 million cubic feet (9 million cubic meters) and sawtimber volume totals 924 million board feet.¹
- Rough, rotten, and salvable dead trees comprise 44 million cubic feet (1,259 thousand cubic meters), 12 percent of the total timber volume.

¹International 1/4-inch rule.

- The largest share of the total growing stock volume is made up of Douglas-fir (25 percent), subalpine fir (22 percent), and aspen (18 percent). Lodgepole pine, Engelmann spruce, white fir, ponderosa pine, pinyon/juniper,² limber pine, cottonwood, and other hardwoods account for the remaining volume.

- Private owners control 68 percent of the total growing stock volume and two-thirds of the sawtimber.

Growth and Mortality

- Net annual growth totals 5,877 thousand cubic feet (166 thousand cubic meters). Growth and mortality were not measured for pinyon and juniper trees.

- Seventy-nine percent of the total net growth is on private lands.

- The annual mortality of 3,444 thousand cubic feet (97 thousand cubic meters) offsets 37 percent of the gross annual growth.

HOW THE INVENTORY WAS CONDUCTED

The inventory was designed to provide reliable statistics primarily at the state and working circle levels. Procedures were as follows:

1. Initial area estimates were based on the classification of 54,971 sample points systematically placed on the latest aerial photographs available. The sample points were summarized and grouped into strata for subsequent field sampling. The photo points, adjusted to meet known land areas, were used to compute area expansion factors for the field stratum means.

2. Land classification and estimates of timber characteristics and volume were based on observations and measurements recorded at 235 ground sample locations. Sample trees were selected using a 10-point cluster which includes fixed plots (1/300 acre) for trees less than 5.0 inches d.b.h. and variable plots (40 BAF) for trees 5.0 inches d.b.h. or larger.

3. For most species, volume and defect were computed using equations developed for the Ashley National Forest. For other species, Kemp's equations were used.

4. All photo and field data were sent to Ogden, Utah, for editing and were punched onto cards and stored for machine computing, sorting, and tabulation. Final estimates were based on statistical summaries of the data.

²The area occupied by pinyon-juniper forest type classified as commercial is so classified because the site index for other associated species on these stands (usually ponderosa pine or Douglas-fir) was high enough to indicate a site potential productivity level exceeding 20 cubic feet per acre per year average annual growth, and nonstockable indicators were not present in sufficient quantities to lower the yield capability below 20 cubic feet per acre per year.

Although pinyon/juniper usually occurs on upproductive forest land, when it occurs in mixtures with other species on productive sites, it is reported in the commercial timberland statistics.

DATA RELIABILITY

Individual cells within tables should be used with caution. Some are based on very small sample sizes, and so result in high sampling errors. The standard error percents shown in tables 1 and 2 were calculated at the 67 percent confidence level.

Table 1.--Area of forest land and percent standard error for the Mountain Lands and Vinta Basin Working Circles, 1978

Item	Softwood types		Hardwood types		All types	
		Percent		Percent		Percent
	Acres	standard	Acres	standard	Acres	standard
		error		error		error
Commercial timberland	204,018	7.4	97,618	13.6	301,636	5.4
Other forest land:						
Unproductive nonreserved	1,181,270	4.4	498,731	10.5	1,680,001	1.1

Table 2.--Net volume, net annual growth, and annual mortality of growing stock and sawtimber on commercial timberland, with percent standard error for the Mountain Lands and Vinta Basin Working Circles, 1978

Item	Softwoods		Hardwoods		All species	
		Percent		Percent		Percent
	Volume	standard	Volume	standard	Volume	standard
		error		error		error
Net volume:						
Growing stock (M cubic feet)	252,040	10.0	66,438	16.1	318,478	8.5
Sawtimber (M board feet ¹)	870,645	10.1	53,683	49.0	924,328	9.8
Net annual growth:						
Growing stock (cubic feet)	3,650,348	34.7	2,226,492	20.9	5,876,840	23.1
Sawtimber (board feet ¹)	16,763,861	26.9	2,500,670	64.7	19,264,531	24.8
Annual mortality:						
Growing stock (cubic feet)	2,875,698	36.9	568,354	35.0	3,444,052	31.5
Sawtimber (board feet ¹)	9,272,328	36.8	234,744	51.5	9,507,072	35.9

¹International 1/4-inch rule.

TERMINOLOGY AND DATA TABLES

The following section contains definitions that are relevant to the timber resource data presented in this resource bulletin. Forest area and timber resource data for the Mountain Lands and Uinta Basin Working Circles, Utah, are displayed in tables 3 through 23.

TERMINOLOGY

Land

Bureau of the Census.--Area of dry land and land temporarily or partly covered by water, such as marshes, swamps, and river flood plains; streams, sloughs, estuaries, and canals less than 1/8 of a statute mile in width; and lakes, reservoirs, and ponds less than 40 acres in area. Includes noncensus water. See definition below.

Water

Census water.--As defined by the Bureau of the Census, streams, sloughs, estuaries, and canals more than 1/8 of a statute mile in width; and lakes, reservoirs, and ponds more than 40 acres in area.

Noncensus water.--The same as defined by the Bureau of the Census, except minimum width of streams, sloughs, estuaries, and canals is 120 feet and minimum size of lakes, reservoirs, and ponds is 1 acre.

Land Use Classes

Forest land.--Land at least 16.7 percent stocked by forest trees of any size, or formerly having had such tree cover, and not currently developed for nonforest use.

Commercial timberland.--Forest land producing or capable of producing crops of industrial wood and not withdrawn from timber utilization. (Areas qualifying have the capability of producing in excess of 20 cubic feet per acre per year of industrial wood under management. Currently inaccessible and inoperable areas are included, except when the areas involved are small and unlikely to become suitable for production of industrial wood in the foreseeable future.)

Productive-reserved forest land.--Forest land sufficiently productive to qualify as commercial timberland, but withdrawn from timber utilization through statute, administrative designation, or exclusive use for Christmas tree production.

Other forest land.--Forest land incapable of producing 20 cubic feet per acre of industrial wood under management, because of adverse site conditions; includes both reserved and nonreserved forest land.

Nonforest land.--Land that has never supported forests and lands formerly forested where use for timber management is precluded by development for other uses.

Public Ownership Classes

National Forest lands.--Federal lands legally designated as National Forest or purchase units and other lands under the administration of the Forest Service, including experimental areas and Bankhead-Jones Title III lands.

Bureau of Land Management lands.--Federal lands administered by the Bureau of Land Management.

Indian lands.--Tribal lands held in fee by the Federal Government, but administered for Indian tribal groups and Indian trust allotments.

State lands.--Lands owned by States, or lands leased to these governmental units for 50 years or more.

County and municipal lands.--Lands owned by counties and local public agencies or municipalities, or lands leased to these governmental units for 50 years or more.

Private Ownership Classes

Forest industry lands.--Lands owned by companies or individuals operating wood-processing plants.

Farmer-owned lands.--Lands owned by farm operators. (These exclude lands leased by farm operators from such nonfarm owners as railroad companies and States.)

Miscellaneous Federal lands.--Federal lands other than the following: (1) National Forest lands; (2) lands administered by the Bureau of Land Management; and (3) Indian lands.

Other private lands.--Privately owned lands other than forest industry and farmer-owned lands.

Forest Type and Tree Species

Forest types.--A classification of forest land based upon the species forming a plurality of live-tree stocking.

Forest trees.--Woody plants having a well-developed stem and usually more than 12 feet in height at maturity.

Commercial species.--Tree species presently or prospectively suitable for industrial wood products.

Softwoods.--Coniferous trees, usually evergreen, having needles or scalelike leaves.

Hardwoods.--Dicotyledonous trees, usually broad-leaved and deciduous.

Area Condition Classes

Stocking.--Stocking is an effort to express the extent to which growing space is effectively utilized by present or potential growing stock trees of commercial species. "Percent of stocking" is synonymous with "percentage of growing space occupied" and means the ratio of actual stocking to full stocking for comparable sites and stands. Basal area is used as a basis for measuring stocking.

"Stocking percentages" express current area occupancy in relation to specified standards for full stocking based on number, size, and spacing of trees considered necessary to fully utilize the forest land.

Full utilization of the site is assumed to occur over a range of basal area. As an interim guide, 60 percent of the normal yield table values has been used to establish the lower limit of this range which represents full-site occupancy. This is called 100-percent stocking. The upper limit of full stocking has been set at 132 percent. Sites with less than 100-percent stocking represent understocking with less than full-site occupancy. Overstocking is characterized by sites with over 133 percent stocking.

Class 10.--Areas fully stocked (100 to 132 percent) with desirable trees and not overstocked (133 percent or more).

Class 20.--Areas fully stocked with desirable trees, but overstocked with all live trees.

Class 30.--Areas medium to fully stocked (60 to 99 percent) with desirable trees and with less than 30 percent of the area controlled by other trees and/or inhibiting vegetation or surface conditions that will prevent occupancy by desirable trees.

Class 40.--Areas medium to fully stocked with desirable trees and with 30 percent or more of the area controlled by other trees and/or conditions that ordinarily prevent occupancy by desirable trees.

Class 50.--Areas poorly stocked (16.7 to 59 percent) with desirable trees, but fully stocked with growing stock trees.

Class 60.--Areas poorly stocked with desirable trees, but with medium to full stocking of growing stock trees.

Class 70.--Areas nonstocked (less than 16.7 percent) or poorly stocked with desirable trees, and poorly stocked with growing stock trees.

Class 80.--Low-risk old-growth stands.

Class 90.--High-risk old-growth stands.

Nonstocked.--Areas less than 16.7 percent stocked with growing stock trees.

Class of Timber

Growing stock trees.--Live trees of commercial species qualifying as desirable or acceptable trees. (Excludes rough, rotten, and dead trees.)

Desirable trees.--Growing stock trees (a) having no serious defect in quality limiting present or prospective use for timber products; (b) of relatively high vigor; and (c) containing no pathogens that may result in death or serious deterioration before rotation age.

Acceptable trees.--Growing stock trees that meet specified standards of size and quality, but do not qualify as desirable trees.

Rough trees.--(1) Live trees that do not contain at least one 12-foot saw log or two noncontiguous saw logs, each 8 feet long or longer, now or prospectively, and/or do not meet Rocky Mountain Regional specifications for freedom from defect primarily because of roughness or poor form; (2) all live trees of noncommercial species.

Rotten trees.--Live trees that do not contain at least one 12-foot saw log or two noncontiguous saw logs, each 8 feet long or longer, now or prospectively, and/or do not meet Rocky Mountain Regional specifications for freedom from defect primarily because of rot; that is, when more than 50 percent of the cull volume (cubic-foot basis) in a tree is rotten.

Salvable dead trees.--Standing or down dead trees that are considered merchantable by Rocky Mountain Regional standards.

Saw-log portion.--That part of the bole of sawtimber trees between the stump and the saw-log top. A 1-foot stump is used.

Upper-stem portion.--That part of the bole of sawtimber trees above the saw-log top to a minimum top diameter of 4.0 inches outside bark or to the point where the central stem breaks into limbs, whichever occurs first.

Tree Size Classes

Seedlings.--Live trees less than 1.0 inch in diameter at breast height.

Saplings.--Trees 1.0 to 4.9 inches in diameter at breast height.

Poletimber trees.--Trees at least 5.0 inches in d.b.h., but smaller than sawtimber size.

Sawtimber trees.--Trees exceeding poletimber size. In the Intermountain States, the minimum d.b.h. for softwood sawtimber is 9.0 inches and for hardwood 11.0 inches.

Volume

Cull volume.--Portions of a tree's volume that are not usable for industrial wood products because of rot, form, or other defect.

Net volume.--Gross volume less deductions for cull.

Growing stock volume.--Net volume in cubic feet of live sawtimber trees and live poletimber trees from stump to a minimum 4.0-inch top (of central stem) outside bark. Net volume equals gross volume less deduction for rot and missing bole sections.

Sawtimber volume.--Net volume in board feet of sawtimber trees of commercial species. Net volume equals gross volume less deduction for rot, sweep, crook, and other defects that affect use for lumber.

Growth and Mortality

Net annual growth.--The increase in net growing stock volume of a specified size class for a specific year. (Components of net annual growth include the increment in net volume of trees at the beginning of the specific year surviving to its end, plus net volume of trees reaching the size class during the year, minus the net volume of trees that died during the year, minus the net volume of trees that became rough or rotten trees during the year.)

Mortality.--Number or sound-wood volume of growing stock trees dying from natural causes during a specified period, usually annually.

Site

Site class.--A classification of forest land in terms of inherent capacity to grow crops of industrial wood.

Site classifications are based upon the mean net annual growth of growing stock (not including thinnings or mortality loss) attainable at culmination of mean net annual growth over age. Height-age relationships are usually used as indicators of the specified volume-site class.

Stand-Size Classes

Sawtimber stands.--Stands at least 16.7 percent stocked with growing stock trees, with half or more of total stocking in sawtimber or poletimber trees, and with sawtimber stocking at least equal to poletimber stocking.

Poletimber stands.--Stands at least 16.7 percent stocked with growing stock trees in which half or more of this stocking is in poletimber and/or sawtimber trees, and with poletimber stocking exceeding that of sawtimber.

Sapling-seedling stands.--Stands at least 16.7 percent stocked with growing stock trees in which more than half of the stocking is saplings and/or seedlings.

Nonstocked land.--Commercial timberland less than 16.7 percent stocked with growing stock trees.

FOREST SURVEY TABLES

Table 3.--*Total land and water area in the Mountain Lands and Vinta Basin Working Circles by ownership class, 1978*

Ownership class	Acres	Hectares
National Forest	2,625,517	1,062,513
Bureau of Land Management	1,778,446	719,715
Indian	811,618	328,451
Miscellaneous Federal	76,606	31,001
State	503,227	203,650
County and municipal	512	207
Private	2,829,738	1,145,159
Total land area	8,625,664	3,490,696
Census water	132,608	53,665
Gross area¹	8,758,272	3,544,361

¹U.S. Bureau of the Census, land and water area of the United States, 1970.

Table 4.--*Total land area in the Mountain Lands and Vinta Basin Working Circles by major land class and ownership class, 1978*

Land class	Ownership class					
	Public		Private		Total	
	Acres	Hectares	Acres	Hectares	Acres	Hectares
Commercial timberland	108,576	43,939	193,060	78,129	301,636	122,068
Productive reserved	3,458	1,399	88	36	3,546	1,435
Other forest land:						
Unproductive reserved	38,901	15,743	--	--	38,901	15,743
Unproductive nonreserved	960,449	388,682	719,552	291,193	1,680,001	679,875
Total forest land	1,111,384	449,763	912,700	369,358	2,024,084	819,121
Nonforest land	2,059,025	833,261	1,917,038	775,801	3,976,063	1,609,062
Total land area	3,170,409	1,283,024	2,829,738	1,145,159	6,000,147	2,428,183

Table 5.--Area of commercial timberland in the Mountain Lands and Uinta Basin
Working Circles by forest type, stand-size class, and site class,
1978

Forest type and stand-size class	Site class				All classes
	120+	85-119	50-84	20-49	
----- Acres -----					
Douglas-fir:					
Sawtimber	--	2,380	7,243	53,886	63,509
Poletimber	--	--	--	5,118	5,118
Sapling and seedling	--	--	--	12,138	12,138
Nonstocked	--	--	2,557	--	2,557
Total	--	2,380	9,800	71,142	83,322
Ponderosa pine:					
Sawtimber	--	--	--	4,819	4,819
Poletimber	--	--	--	--	--
Sapling and seedling	--	--	--	2,365	2,365
Nonstocked	--	--	--	2,451	2,451
Total	--	--	--	9,635	9,635
Lodgepole pine:					
Sawtimber	--	--	--	17,611	17,611
Poletimber	--	--	--	10,184	10,184
Sapling and seedling	--	--	--	2,589	2,589
Nonstocked	--	--	--	2,562	2,562
Total	--	--	--	32,946	32,946
Limber pine:					
Sawtimber	--	--	--	2,365	2,365
Poletimber	--	--	--	--	--
Sapling and seedling	--	--	--	--	--
Nonstocked	--	--	--	--	--
Total	--	--	--	2,365	2,365
Fir-spruce:					
Sawtimber	2,556	4,831	17,104	14,796	39,287
Poletimber	--	--	7,299	--	7,299
Sapling and seedling	--	--	2,365	--	2,365
Nonstocked	--	--	--	--	--
Total	2,556	4,831	26,768	14,796	48,951
White fir:					
Sawtimber	--	5,113	2,556	4,761	12,430
Poletimber	--	--	--	--	--
Sapling and seedling	--	--	--	--	--
Nonstocked	--	--	--	--	--
Total	--	5,113	2,556	4,761	12,430
Pinyon-juniper:					
Sawtimber	--	--	--	12,004	12,004
Poletimber	--	--	--	--	--
Sapling and seedling	--	--	--	--	--
Nonstocked	--	--	--	2,365	2,365
Total	--	--	--	14,369	14,369
Aspen:					
Sawtimber	--	4,965	12,543	2,455	19,963
Poletimber	--	2,589	15,107	32,600	50,296
Sapling and seedling	--	--	9,887	12,507	22,394
Nonstocked	--	--	--	--	--
Total	--	7,554	37,537	47,562	92,653
Cottonwood:					
Sawtimber	--	--	--	4,965	4,965
Poletimber	--	--	--	--	--
Sapling and seedling	--	--	--	--	--
Nonstocked	--	--	--	--	--
Total	--	--	--	4,965	4,965
All types:					
Sawtimber	2,556	17,289	39,446	117,662	176,953
Poletimber	--	2,589	22,406	47,902	72,897
Sapling and seedling	--	--	12,252	29,599	41,851
Nonstocked	--	--	2,557	7,378	9,935
Total	2,556	19,878	76,661	202,541	301,636

Table 6.--Area of publicly owned commercial timberland in the Mountain Lands and Vinta Basin Working Circles by forest type, stand-size class, and site class, 1978

Forest type and stand-size class	Site class				All classes
	120+	85-119	50-84	20-49	
----- Acres -----					
Douglas-fir:					
Sawtimber	--	308	1,086	31,555	32,949
Poletimber	--	--	--	2,108	2,108
Sapling and seedling	--	--	--	6,470	6,470
Nonstocked	--	--	435	--	435
Total	--	308	1,521	40,133	41,962
Ponderosa pine:					
Sawtimber	--	--	--	3,114	3,114
Poletimber	--	--	--	--	--
Sapling and seedling	--	--	--	1,393	1,393
Nonstocked	--	--	--	535	535
Total	--	--	--	5,042	5,042
Lodgepole pine:					
Sawtimber	--	--	--	5,861	5,861
Poletimber	--	--	--	2,109	2,109
Sapling and seedling	--	--	--	570	570
Nonstocked	--	--	--	1,674	1,674
Total	--	--	--	10,214	10,214
Limber pine:					
Sawtimber	--	--	--	1,393	1,393
Poletimber	--	--	--	--	--
Sapling and seedling	--	--	--	--	--
Nonstocked	--	--	--	--	--
Total	--	--	--	1,393	1,393
Fir-spruce:					
Sawtimber	434	843	5,962	3,313	10,552
Poletimber	--	--	2,398	--	2,398
Sapling and seedling	--	--	1,393	--	1,393
Nonstocked	--	--	--	--	--
Total	434	843	9,753	3,313	14,343
White fir:					
Sawtimber	--	869	434	617	1,920
Poletimber	--	--	--	--	--
Sapling and seedling	--	--	--	--	--
Nonstocked	--	--	--	--	--
Total	--	869	434	617	1,920
Pinyon-juniper:					
Sawtimber	--	--	--	7,622	7,622
Poletimber	--	--	--	--	--
Sapling and seedling	--	--	--	--	--
Nonstocked	--	--	--	1,393	1,393
Total	--	--	--	9,015	9,015
Aspen:					
Sawtimber	--	939	4,560	1,722	7,221
Poletimber	--	570	3,018	6,500	10,088
Sapling and seedling	--	--	2,967	3,472	6,439
Nonstocked	--	--	--	--	--
Total	--	1,509	10,545	11,694	23,748
Cottonwood:					
Sawtimber	--	--	--	939	939
Poletimber	--	--	--	--	--
Sapling and seedling	--	--	--	--	--
Nonstocked	--	--	--	--	--
Total	--	--	--	939	939
All types:					
Sawtimber	434	2,959	12,042	56,136	71,571
Poletimber	--	570	5,416	10,717	16,703
Sapling and seedling	--	--	4,360	11,905	16,265
Nonstocked	--	--	435	3,602	4,037
Total	434	3,529	22,253	82,360	108,576

Table 7.--Area of privately owned commercial timberland in the Mountain Lands and Uinta Basin Working Circles by forest type, stand-size class, and site class, 1978

Forest type and stand-size class	Site class				All classes
	120+	85-119	50-84	20-49	
----- Acres -----					
Douglas-fir:					
Sawtimber	--	2,072	6,157	22,331	30,560
Poletimber	--	--	--	3,010	3,010
Sapling and seedling	--	--	--	5,668	5,668
Nonstocked	--	--	2,122	--	2,122
Total	--	2,072	8,279	31,009	41,360
Ponderosa pine:					
Sawtimber	--	--	--	1,705	1,705
Poletimber	--	--	--	--	--
Sapling and seedling	--	--	--	972	972
Nonstocked	--	--	--	1,916	1,916
Total	--	--	--	4,593	4,593
Lodgepole pine:					
Sawtimber	--	--	--	11,750	11,750
Poletimber	--	--	--	8,075	8,075
Sapling and seedling	--	--	--	2,019	2,019
Nonstocked	--	--	--	888	888
Total	--	--	--	22,732	22,732
Limber pine:					
Sawtimber	--	--	--	972	972
Poletimber	--	--	--	--	--
Sapling and seedling	--	--	--	--	--
Nonstocked	--	--	--	--	--
Total	--	--	--	972	972
Fir-spruce:					
Sawtimber	2,122	3,988	11,142	11,483	28,735
Poletimber	--	--	4,901	--	4,901
Sapling and seedling	--	--	972	--	972
Nonstocked	--	--	--	--	--
Total	2,122	3,988	17,015	11,483	34,608
White fir:					
Sawtimber	--	4,244	2,122	4,144	10,510
Poletimber	--	--	--	--	--
Sapling and seedling	--	--	--	--	--
Nonstocked	--	--	--	--	--
Total	--	4,244	2,122	4,144	10,510
Pinyon-juniper:					
Sawtimber	--	--	--	4,382	4,382
Poletimber	--	--	--	--	--
Sapling and seedling	--	--	--	--	--
Nonstocked	--	--	--	972	972
Total	--	--	--	5,354	5,354
Aspen:					
Sawtimber	--	4,026	7,983	733	12,742
Poletimber	--	2,019	12,089	26,100	40,208
Sapling and seedling	--	--	6,920	9,035	15,955
Nonstocked	--	--	--	--	--
Total	--	6,045	26,992	35,868	68,905
Cottonwood:					
Sawtimber	--	--	--	4,026	4,026
Poletimber	--	--	--	--	--
Sapling and seedling	--	--	--	--	--
Nonstocked	--	--	--	--	--
Total	--	--	--	4,026	4,026
All types:					
Sawtimber	2,122	14,330	27,404	61,526	105,382
Poletimber	--	2,019	16,990	37,185	56,194
Sapling and seedling	--	--	7,892	17,694	25,586
Nonstocked	--	--	2,122	3,776	5,898
Total	2,122	16,349	54,408	120,181	193,060

Table 8.--Area of commercial timberland in the Mountain Lands and Uinta Basin Working Circles by stand volume and ownership class, 1978

Stand volume per acre ¹	Ownership class		
	Public	Private	Public and private
	----- Acres -----		
Less than 1,500 board feet	32,947	75,879	108,826
1,500 to 4,999 board feet	60,323	76,031	136,354
5,000 to 9,999 board feet	11,256	28,041	39,297
10,000 board feet or more	4,050	13,109	17,159
All classes	108,576	193,060	301,636

¹International 1/4-inch rule.

Table 9.--Area of commercial timberland in the Mountain Lands and Uinta Basin Working Circles by forest type and area condition class, 1978

Forest type	Area condition class										Nonstocked	All classes
	10	20	30	40	50	60	70	80	90			
	Acres											
Douglas-fir	--	--	2,381	12,223	10,274	9,777	17,141	12,127	16,842	2,557	83,322	33,719
Ponderosa pine	--	--	--	2,454	--	2,365	2,365	--	--	2,451	9,635	3,899
Lodgepole pine	--	7,633	--	--	10,296	7,384	5,071	--	--	2,562	32,946	13,333
Limber pine	--	--	--	--	--	--	--	--	2,365	--	2,365	957
Fir-spruce	--	2,380	2,556	7,458	12,373	12,135	4,922	2,381	4,746	--	48,951	19,810
White fir	--	--	--	--	2,556	5,113	--	--	4,761	--	12,430	5,030
Pinyon-juniper	--	--	--	--	--	2,454	--	7,184	2,366	2,365	14,369	5,815
Aspen	2,588	7,660	--	22,347	15,217	39,802	5,039	--	--	--	92,653	37,496
Cottonwood	--	--	--	--	--	2,483	--	--	2,482	--	4,965	2,009
All types	2,588	17,673	4,937	44,482	50,716	81,513	34,538	21,692	33,562	9,935	301,636	122,068

Table 10.--Area of productive reserved and other forest land in the Mountain Lands and Uinta Basin
Working Circles by land class, ownership class, and forest type, 1978

Land class	Forest type										All types
	Douglas-fir	Ponderosa pine	Lodgepole pine	Limber pine	pine	juniper	softwoods	Other hardwoods	Aspen	Cottonwood	Total
Productive reserved area:											
Public	822	--	--	--	--	--	822	--	2,636	--	3,458
Private	--	--	--	--	--	--	--	--	88	--	88
Other forest land area:											
Unproductive nonreserved:											
Public	6,134	1,674	570	3,067	843,087	854,532	45,176	48,199	12,542	105,917	960,449
Private	3,721	888	2,018	1,860	318,251	326,738	171,839	173,107	47,868	392,814	719,552
Unproductive reserved:											
Public	2,514	--	10,942	1,331	21,566	36,353	790	1,478	280	2,548	38,901
Private	--	--	--	--	--	--	--	--	--	--	15,743
All areas:											
Public	9,470	1,674	11,512	4,398	864,653	891,707	45,966	52,313	12,822	111,101	1,002,808
Private	3,721	888	2,018	1,860	318,251	326,738	171,839	173,195	47,868	392,902	719,640
Total acres	13,191	2,562	13,530	6,258	1,182,904	1,218,445	217,805	225,508	60,690	504,003	1,722,448
Total hectares	5,338	1,037	5,476	2,533	478,706	493,090	88,143	91,260	24,560	203,963	697,053

Table 11.--Number of growing stock trees on commercial timberland in the Mountain Lands and Uinta Basin
Working Circles by species and diameter class, 1978

Species	Diameter class (inches at breast height)															All classes
	1.0- 2.9	3.0- 4.9	5.0- 6.9	7.0- 8.9	9.0- 10.9	11.0- 12.9	13.0- 14.9	15.0- 16.9	17.0- 18.9	19.0- 20.9	21.0- 22.9	23.0- 24.9	25.0- 26.9	27.0- 28.9	29.0- 29.0+	
----- <i>Thousand trees</i> -----																
Douglas-fir	5,224	3,607	2,727	1,584	1,260	831	605	319	187	123	103	41	21	19	16	16,667
Ponderosa pine	512	147	70	35	145	89	46	78	33	27	14	9	5	--	9	1,219
Lodgepole pine	5,125	2,129	1,547	1,096	865	442	167	52	7	--	4	--	--	--	--	11,434
Limber pine	--	223	161	86	39	64	26	35	16	--	4	10	3	--	--	667
Subalpine fir	8,874	3,947	3,510	2,291	936	728	353	213	168	65	43	6	--	2	2	21,138
White fir	971	685	270	129	236	146	114	45	50	44	19	22	--	14	18	2,763
Engelmann spruce	824	522	281	215	197	164	120	135	28	33	42	16	20	5	6	2,608
Pinyon/juniper	931	794	233	117	189	141	47	57	39	36	7	6	2	--	2	2,601
Total softwoods	22,461	12,054	8,799	5,553	3,867	2,605	1,478	934	528	328	236	110	51	40	53	59,097
Aspen	23,143	19,021	10,103	5,100	1,751	748	286	53	17	--	4	--	--	--	--	60,226
Cottonwood	155	223	63	29	18	90	63	44	51	15	26	3	6	9	6	801
Other hardwoods	--	--	138	30	--	--	--	--	--	--	--	--	--	--	--	168
Total hardwoods	23,298	19,244	10,304	5,159	1,769	838	349	97	68	15	30	3	6	9	6	61,195
All species	45,759	31,298	19,103	10,712	5,636	3,443	1,827	1,031	596	343	266	113	57	49	59	120,292

Table 12.--Number of cull and salvageable dead trees on commercial timberland in the Mountain Lands and Vinta Basin Working Circles by ownership class, and softwoods and hardwoods, 1978

Ownership class and species group	Cull trees		Salvageable	
	Sound	Rotten	Total	dead trees
----- Thousand trees -----				
Public:				
Softwoods	3,506	78	3,584	1,359
Hardwoods	1,570	1,088	2,658	577
Total	5,076	1,166	6,242	1,936
Private:				
Softwoods	7,019	138	7,157	1,963
Hardwoods	4,378	2,426	6,804	1,794
Total	11,397	2,564	13,961	3,757
Public and private:				
Softwoods	10,525	216	10,741	3,322
Hardwoods	5,948	3,514	9,462	2,371
Total	16,473	3,730	20,203	5,693

Table 13.--Net volume of growing stock on commercial timberland in the Mountain Lands and Uinta Basin
Working Circles by ownership class, forest type, and stand-size class, 1978

Ownership class:	Forest type	Stand-size class					All classes
		Sawtimber	Poletimber	Sapling/seedling	Nonstocked		
				Thousand cubic feet		Thousand cubic meters	
Public:							
	Douglas-fir	30,294	1,989	2,474	125	34,882	988
	Ponderosa pine	2,891	--	1,110	62	4,063	115
	Lodgepole pine	7,514	2,631	120	--	10,265	291
	Limber pine	858	--	--	--	858	24
	Fir-spruce	19,231	4,536	995	--	24,762	701
	White fir	2,501	--	--	--	2,501	71
	Pinyon-juniper	4,133	--	--	202	4,335	123
	Aspen	7,341	8,561	1,567	--	17,469	494
	Cottonwood	1,520	--	--	--	1,520	43
	All types	76,283	17,717	6,266	389	100,655	2,850
Private:							
	Douglas-fir	34,685	1,700	2,477	611	39,473	1,118
	Ponderosa pine	1,344	--	775	221	2,340	66
	Lodgepole pine	12,473	9,995	423	--	22,891	648
	Limber pine	598	--	--	--	598	17
	Fir-spruce	65,047	9,177	694	--	74,918	2,122
	White fir	14,279	--	--	--	14,279	404
	Pinyon-juniper	2,375	--	--	141	2,516	71
	Aspen	16,875	33,954	3,465	--	54,294	1,538
	Cottonwood	6,514	--	--	--	6,514	184
	All types	154,190	54,826	7,834	973	217,823	6,168
Public and private:							
	Douglas-fir	64,979	3,689	4,951	736	74,355	2,106
	Ponderosa pine	4,235	--	1,885	283	6,403	181
	Lodgepole pine	19,987	12,626	543	--	33,156	939
	Limber pine	1,456	--	--	--	1,456	41
	Fir-spruce	84,278	13,713	1,689	--	99,680	2,823
	White fir	16,780	--	--	--	16,780	475
	Pinyon-juniper	6,508	--	--	343	6,851	194
	Aspen	24,216	42,515	5,032	--	71,763	2,032
	Cottonwood	8,034	--	--	--	8,034	227
	All types	230,473	72,543	14,100	1,362	318,478	9,018

Table 14.--Net volume of sawtimber on commercial timberland in the Mountain Lands and Uinta Basin
Working Circles by ownership class, forest type, and stand-size class, 1978

Ownership class:	Forest type	Stand-size class				All classes
		Sawtimber	Poletimber	Sapling/seedling	Nonstocked	
- - - - - Thousand board feet ¹ - - - - -						
Public:	Douglas-fir	113,742	4,354	7,571	620	126,287
	Ponderosa pine	12,618	--	5,713	347	18,678
	Lodgepole pine	23,616	3,997	389	--	28,002
	Limber pine	3,642	--	--	--	3,642
	Fir-spruce	68,193	10,372	2,620	--	81,185
	White fir	6,853	--	--	--	6,853
	Pinyon-juniper	14,339	--	--	819	15,158
	Aspen	16,664	6,706	5,490	--	28,860
	Cottonwood	6,869	--	--	--	6,869
	All types	266,536	25,429	21,783	1,786	315,534
Private:	Douglas-fir	128,749	3,378	7,340	3,027	142,494
	Ponderosa pine	5,883	--	3,986	1,245	11,114
	Lodgepole pine	40,399	14,970	1,378	--	56,747
	Limber pine	2,542	--	--	--	2,542
	Fir-spruce	226,225	20,203	1,829	--	248,257
	White fir	40,052	--	--	--	40,052
	Pinyon-juniper	8,505	--	--	572	9,077
	Aspen	32,452	26,050	10,572	--	69,074
	Cottonwood	29,437	--	--	--	29,437
	All types	514,244	64,601	25,105	4,844	608,794
Public and private:	Douglas-fir	242,491	7,732	14,911	3,647	268,781
	Ponderosa pine	18,501	--	9,699	1,592	29,792
	Lodgepole pine	64,015	18,967	1,767	--	84,749
	Limber pine	6,184	--	--	--	6,184
	Fir-spruce	294,418	30,575	4,449	--	329,442
	White fir	46,905	--	--	--	46,905
	Pinyon-juniper	22,844	--	--	1,391	24,235
	Aspen	49,116	32,756	16,062	--	97,934
	Cottonwood	36,306	--	--	--	36,306
	All types	780,780	90,030	46,888	6,630	924,328

¹International 1/4-inch rule.

Table 15.--Net volume of growing stock on commercial timberland in the Mountain Lands and Uinta Basin
Working Circles by species and diameter class, 1978

Species	Diameter class (inches at breast height)														All classes
	5.0- 6.9	7.0- 8.9	9.0- 10.9	11.0- 12.9	13.0- 14.9	15.0- 16.9	17.0- 18.9	19.0- 20.9	21.0- 22.9	23.0- 24.9	25.0- 26.9	27.0- 28.9	29.0+ 30.9		
Thousand cubic feet															
Douglas-fir	4,781	6,583	10,579	11,400	11,986	8,046	6,708	5,420	5,517	3,322	1,624	1,781	2,827	80,574	
Ponderosa pine	42	131	947	1,042	800	1,927	1,107	1,251	789	601	361	--	1,276	10,274	
Lodgepole pine	3,719	7,340	9,897	8,106	4,423	2,055	343	--	296	--	--	--	--	36,179	
Limber pine	227	303	216	736	427	879	535	--	190	701	182	--	--	4,396	
Subalpine fir	7,339	11,983	8,873	12,151	8,275	6,795	7,033	3,615	2,920	459	--	153	261	69,857	
White fir	2,080	1,202	2,768	2,257	2,023	1,050	1,534	1,650	749	902	--	805	1,549	18,569	
Engelmann spruce	888	1,521	1,974	2,648	3,255	5,047	1,527	2,198	2,874	1,536	2,386	646	1,250	27,750	
Pinyon/juniper	209	260	616	727	362	632	579	680	136	124	55	--	61	4,441	
Total softwoods	19,285	29,323	35,870	39,067	31,551	26,431	19,366	14,814	13,471	7,645	4,608	3,385	7,224	252,040	
Aspen	13,886	18,896	11,681	7,539	4,193	903	550	--	149	--	--	--	--	57,797	
Cottonwood	64	213	92	1,106	1,207	1,145	1,483	520	1,190	206	329	447	468	8,470	
Other hardwoods	130	41	--	--	--	--	--	--	--	--	--	--	--	171	
Total hardwoods	14,080	19,150	11,773	8,645	5,400	2,048	2,033	520	1,339	206	329	447	468	66,438	
All species	33,365	48,473	47,643	47,712	36,951	28,479	21,399	15,334	14,810	7,851	4,937	3,832	7,692	318,478	

Table 16.--Net volume of sawtimber on commercial timberland in the Mountain Lands and Uinta Basin
Working Circles by species and diameter class, 1978

Species	Diameter class (inches at breast height)											
	9.0- 10.9	11.0- 12.9	13.0- 14.9	15.0- 16.9	17.0- 18.9	19.0- 20.9	21.0- 22.9	23.0- 24.9	25.0- 26.9	27.0- 28.9	29.0+ 30.9	All classes
	Thousand board feet, International 1/4-inch rule											
Douglas-fir	39,702	46,420	51,753	36,086	31,259	26,030	26,985	16,699	8,252	9,169	15,004	307,359
Ponderosa pine	3,248	4,081	3,420	8,707	5,235	6,147	4,011	3,122	1,913	--	7,076	46,960
Lodgepole pine	40,692	35,906	20,460	9,835	1,670	--	1,511	--	--	--	--	110,074
Limber pine	859	3,261	2,021	4,269	2,673	--	984	3,671	974	--	--	18,712
Subalpine fir	31,810	46,944	33,521	28,660	30,597	16,065	13,223	2,111	--	727	1,238	204,896
White fir	5,888	7,197	7,191	4,312	6,585	7,101	3,154	3,717	--	3,452	6,936	55,533
Engelmann spruce	7,438	10,794	14,063	22,670	7,091	10,440	13,956	7,591	11,891	3,262	6,560	115,756
Pinyon/juniper	1,849	2,166	1,059	1,797	1,595	1,851	371	342	154	--	171	11,355
Total softwoods	131,486	156,769	133,488	116,336	86,705	67,634	64,195	37,253	23,184	16,610	36,985	870,645
Aspen	XXXX	8,194	4,796	1,072	664	--	189	--	--	--	--	14,915
Cottonwood	XXXX	5,591	6,076	5,692	7,081	2,431	5,396	933	1,465	1,988	2,115	38,768
Other hardwoods	XXXX	--	--	--	--	--	--	--	--	--	--	--
Total hardwoods	XXXX	13,785	10,872	6,764	7,745	2,431	5,585	933	1,465	1,988	2,115	53,683
All species	131,486	170,554	144,360	123,100	94,450	70,065	69,780	38,186	24,649	18,598	39,100	924,328

Table 19.--Net volume of growing stock on commercial timberland in the Mountain Lands and Uinta Basin
Working Circles by forest type and species, 1978

Forest type	Species													All species
	Douglas-fir:	Ponderosa:	Lodgepole:	Limber :	Subalpine:	White-fir:	Engelmann:	Pinyon/:	Total :	Aspen :	Cottonwood:	Other :	Total :	
	pine :	pine :	pine :	pine :	fir :		spruce :	juniper:	softwoods:		hardwoods:	hardwoods:	hardwoods:	
Thousand cubic feet														
Douglas-fir	61,886	794	--	2,608	3,610	1,378	--	1,439	71,715	2,640	--	--	2,640	74,355
Ponderosa	--	6,351	--	--	--	--	--	--	6,351	52	--	--	52	6,403
Lodgepole	--	534	28,285	--	277	--	444	--	29,540	3,616	--	--	3,616	33,156
Limber pine	378	--	--	1,078	--	--	--	--	1,456	--	--	--	--	1,456
Fir-spruce	10,673	--	5,071	176	55,257	--	25,652	--	96,829	2,851	--	--	2,851	99,680
White fir	231	--	--	--	397	13,317	--	--	13,945	2,835	--	--	2,835	16,780
Pinyon-	--	--	--	--	--	--	--	--	--	--	--	--	--	--
juniper	3,453	--	--	446	--	--	--	2,952	6,851	--	--	--	--	6,851
Aspen	3,953	2,595	2,823	88	10,316	3,874	1,654	50	25,353	45,701	538	171	46,410	71,763
Cottonwood	--	--	--	--	--	--	--	--	--	102	7,932	--	8,034	8,034
All types	80,574	10,274	36,179	4,396	69,857	18,569	27,750	4,441	252,040	57,797	8,470	171	66,438	318,478

Table 20.--Net volume of sawtimber on commercial timberland in the Mountain Lands and Uinta Basin
Working Circles by forest type and species, 1978

Forest type	Species													All species
	:Ponderosa:Lodgepole: Limber :Subalpine: White-fir :Engelmann:Pinyon/: Total : Cottonwood: Other : Total : : Douglas-fir: pine : pine : pine : fir : spruce :juniper:softwoods: :hardwoods:hardwoods:													
	: :													

Table 21.--Net annual growth of growing stock and sawtimber on commercial timberland in the Mountain Lands and Uinta Basin Working Circles by ownership class and species, 1978

Ownership class	Species									
	Douglas-fir	Ponderosa pine	Lodgepole pine	Limber pine	Subalpine fir	White-fir	Engelmann spruce	Total softwoods	Aspen	Total : Other : hardwoods
GROWING STOCK										
	Cubic feet									
Public	539,183	99,834	-441,596	37,590	322,396	143,808	83,794	785,009	400,442	42,874 1,717 445,033
Private	690,358	70,175	253,592	27,681	877,566	621,419	324,548	2,865,339	1,592,081	182,154 7,224 1,781,459 4,646,798
Total	1,229,541	170,009	-188,004	65,271	1,199,962	765,227	408,342	3,650,348	1,992,523	225,028 8,941 2,226,492 5,876,840
GROWING STOCK										
	Cubic meters									
Public	15,268	2,827	-12,504	1,064	9,129	4,072	2,373	22,229	11,339	1,214 49 12,602 34,831
Private	19,549	1,987	7,181	784	24,850	17,597	9,190	81,138	45,083	5,158 204 50,445 131,583
Total	34,817	4,814	-5,323	1,848	33,979	21,669	11,563	103,367	56,422	6,372 253 63,047 166,414
SAWTIMBER										
	Board feet, International 1/4-inch rule									
Public	2,732,611	505,154	-335,857	356,774	1,182,644	463,352	365,132	5,269,810	46,376	402,362 -- 448,738 5,718,548
Private	3,578,497	336,550	1,960,616	245,753	1,789,073	2,102,280	1,481,282	11,494,051	334,710	1,717,222 -- 2,051,932 13,545,983
Total	6,311,108	841,704	1,624,759	602,527	2,971,717	2,565,632	1,846,414	16,763,861	381,086	2,119,584 -- 2,500,670 19,264,531

Table 22.--Annual mortality of growing stock and sawtimber on commercial timberland in the Mountain Lands and Uinta Basin Working Circles by ownership class, and softwoods and hardwoods, 1978

Species group and ownership class	Growing stock		Sawtimber	
	- Cubic feet	- Board feet ¹	- Cubic meters	- Board feet ¹
Softwoods:				
Public	1,192,428		33,766	3,664,531
Private	1,683,270		47,665	5,607,797
Total	2,875,698		81,431	9,272,328
Hardwoods:				
Public	136,240		3,858	70,319
Private	432,114		12,236	164,425
Total	568,354		16,094	234,744

¹International 1/4-inch rule.

Table 23.--Annual mortality of growing stock and sawtimber on commercial timberland in the Mountain Lands and Uinta Basin Working Circles by cause of death and species, 1978

Cause of death	Species						
	Douglas-fir	Lodgepole pine	Subalpine fir	Engelmann spruce	Total softwoods	Aspen	All species
GROWING STOCK							
Insects	104,986	92,969	261,502	--	459,457	35,697	495,154
Disease	121,546	--	106,485	18,784	246,815	142,409	389,224
Fire	99,756	887,966	--	--	987,722	--	987,722
Animal	--	33,202	--	--	33,202	105,620	138,822
Weather	22,255	69,643	403,319	77,220	572,437	--	572,437
Suppression	--	--	25,543	--	25,543	9,319	34,862
Unknown	232,356	127,783	152,026	--	512,165	275,309	787,474
Logging	38,357	--	--	--	38,357	--	38,357
Total	619,256	1,211,563	948,875	96,004	2,875,698	568,354	3,444,052
GROWING STOCK							
Insects	2,972	2,633	7,405	--	13,010	1,011	14,021
Disease	3,442	--	3,015	532	6,989	4,033	11,022
Fire	2,825	25,144	--	--	27,969	--	27,969
Animal	--	940	--	--	940	2,991	3,931
Weather	630	1,972	11,421	2,187	16,210	--	16,210
Suppression	--	--	723	--	723	264	987
Unknown	6,580	3,619	4,305	--	14,504	7,795	22,299
Logging	1,086	--	--	--	1,086	--	1,086
Total	17,535	34,308	26,869	2,719	81,431	16,094	97,525
SAWTIMBER							
Insects	428,699	439,106	595,200	--	1,463,005	40,781	1,503,786
Disease	571,640	--	445,069	--	1,016,709	55,006	1,071,715
Fire	485,804	2,708,366	--	--	3,194,170	--	3,194,170
Animal	--	130,968	--	--	130,968	40,538	171,506
Weather	84,526	352,495	1,160,653	169,065	1,766,739	--	1,766,739
Suppression	--	--	--	--	--	--	--
Unknown	954,161	197,550	383,712	--	1,535,423	98,419	1,633,842
Logging	165,314	--	--	--	165,314	--	165,314
Total	2,690,144	3,828,485	2,584,634	169,065	9,272,328	234,744	9,507,072

Felt, Dorothy G.

1980. Forest area and timber resource statistics for the Mountain Lands and Uinta Basin Working Circles, Utah, 1977-1978. USDA For. Serv. Resour. Bull. INT-23, 24 p. Intermt. For. and Range Exp. Stn., Ogden, Utah 84401.

Presents land area, commercial timberland area, timber inventory, and growth and mortality data based on Resources Evaluation standards.

KEYWORDS: forest surveys (regional), forest area classification, stand volume

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